

CENTRAL CORRIDOR ADVISORY GROUP

MEETING #12

May 2, 2014 1:30 pm – 3:30 pm

Austin City Hall, Council Chambers



1

Agenda

- 1) Welcome & Introductions
- 2) Public Involvement Update
- 3) Evaluation Results
- 4) Locally Preferred Alternative Recommendation
- 5) Next Steps
- 6) Citizen Communication
- 7) Next Meeting – May 16, 2014



1

CCAG Charge

The CCAG will:

- Ensure open and transparent public process
- Advise Mayor and project team in prioritizing and defining a preferred alignment for the next high-capacity transit investment for the Central Corridor
- Assist project team in a meaningful dialogue with the community



projectconnect
central corridor

3

1

Phase 2 Work Plan & Schedule

Decision-Making Process

- Phase 2: Select Locally Preferred Alternative (LPA)

Current
Progress

Central Corridor High-Capacity Transit Study Work Plan											
				2013	2014						
				6 Dec	7 Jan	8 Feb	9 Mar	10 Apr	11 May	12 Jun	
Phase 2 Select Draft Locally Preferred Alternative (LPA)	Step 4: Identify Preliminary Alternatives	Task 9	Project Purpose								
		Task 10	Process – Methodology & Criteria								
		Task 11	Identify & Screen Preliminary Alternatives – Service, Mode & Alignment								
	Step 5: Define Final Alternatives	Task 12	Define Final Alternatives – Mode & Alignment								
	Step 6: Evaluate Alternatives	Task 13	Evaluate Final Alternatives								
	Step 7: Select LPA	Task 14	Select Draft Locally Preferred Alternative (LPA)								
			Decision								*

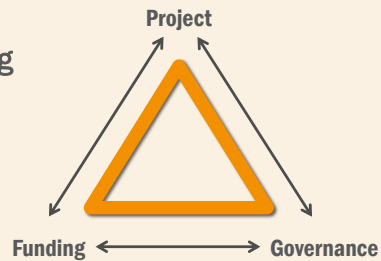
projectconnect
central corridor

4

1

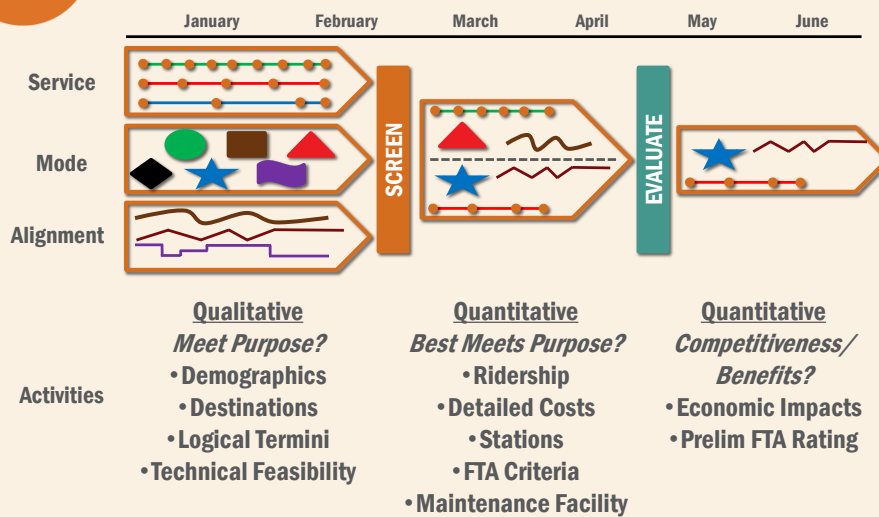
Phase 2 Objectives

- Project Definition
 - Service, mode, alignment, stops
- Funding Plan
 - Capital and O&M costs, funding sources
 - *Within* overall Project Connect Plan
- Governance Structure
- Programs and Policies
 - *Housing/Transit/Jobs Action Team*



1

Evaluation Process



2

Public Involvement Update

2

Recent Public Involvement Activities

- 4/12 Step 5 Public Workshop at Midway Fieldhouse
- 4/16 Greater Austin Contractors & Engineers Association (ACEA) Symposium
- 4/16 Step 5 Workshop for Downtown Austin Alliance Mobility & Streetscapes Committee
- 4/17 Urban Land Institute Austin Marketplace
- 4/17 South Lamar Neighborhood Association
- 4/21 Congress for the New Urbanism - Central Texas Chapter
- 4/23 Step 5 Workshop for Network of Asian American Organizations
- 4/26 Austin Earth Day Festival
- 4/29 Austin Fashion Week
- 4/29 MoPac South Open House

2

Upcoming Activities

- 5/04 Cinco de Mayo Celebration
- 5/06 North Shoal Creek Neighborhood Assoc
- 5/07 Alliance for Public Transportation
- 5/07 Capital Metro Access Advisory
- 5/12 Capital Metro Board Planning/Operations
- 5/12 Waterfront Planning Advisory Board
- 5/13 UTC
- 5/13 Community Development Commission
- 5/13 Homewood Heights & McKinley Heights Neighborhood Association
- 5/14 Capital Metro Board Audit/Finance Committee
- 5/14 TX Society of Professional Engineers – Travis County Chapter
- 5/14 Capital Metro Customer Satisfaction Advisory Committee



2

Upcoming Activities cont

- 5/15 LBJ Neighborhood Assoc
- 5/17 University Hills Neighborhood Assoc
- 5/18 Questors Class
- 5/19 CANPAC
- 5/20 Bryker Woods Neighborhood Assoc
- 5/20 Northeast Austin Neighborhood Assoc
- 5/21 Environmental Board
- 5/21 Downtown Commission
- 5/22 NW Austin Civic Association



2

Upcoming Activities

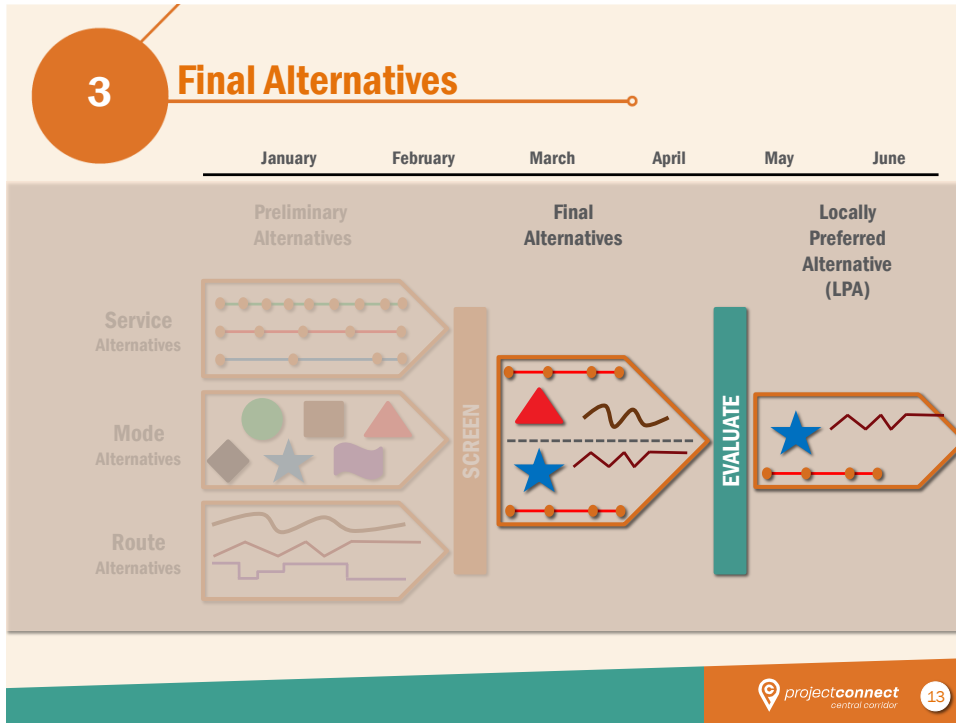
- SpeakUpAustin discussions
- Webinars
- 6 to 8 Public Open Houses
- Stakeholder Briefings
- Social Media engagement
- Televised Town Hall
- Presence at various community events and festivals

3

Evaluation Results

3

Final Alternatives

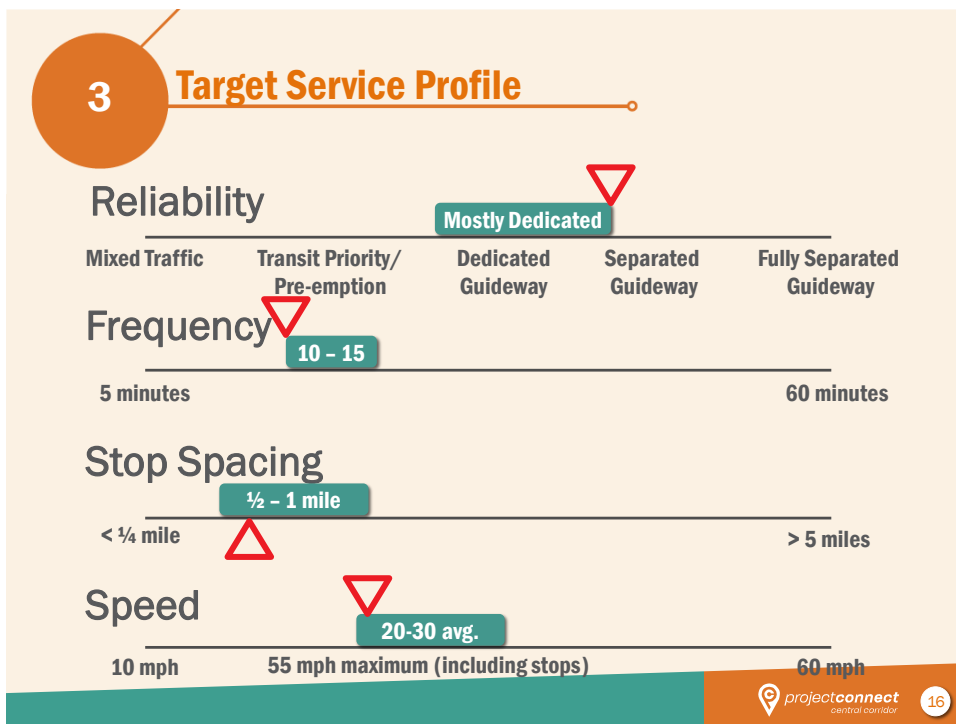
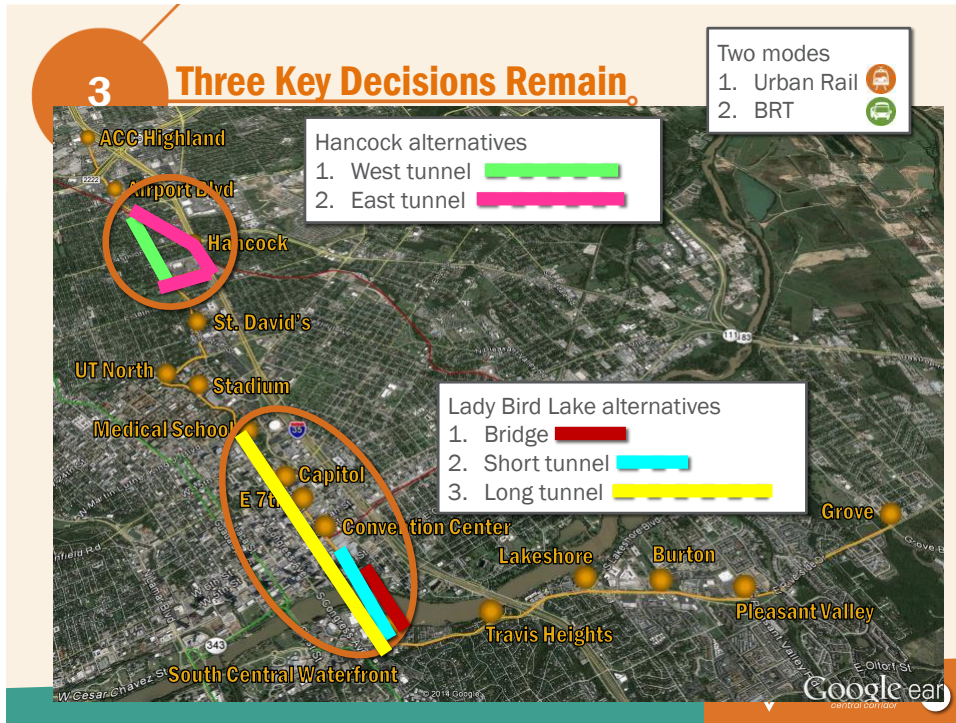


3

Evaluation Matrix

Description	Mode Options		
	Urban Rail	Bus Rapid Transit - 10m	Bus Rapid Transit - 3m
Ridership			
Projected average daily ridership (passengers)	16,824	16,113	20,947
Travel Time			
Travel Time (minutes)			32
Cost			
ROM annual O&M cost (2014 \$)			6,345,600
Annualized Capital Cost (2014 \$)			40,895,741
Initial Vehicle Cost (2014 \$)			18,900,000
Vehicle Emissions (score)			1
Economic Development			
Economic development e (score)			3
Potential Impacts			
Traffic (score)			3
Right-of-Way (affected properties, businesses) (number of properties & businesses)	11	10	10
System Effects			
System Expansion Capacity (score)	4	1	1

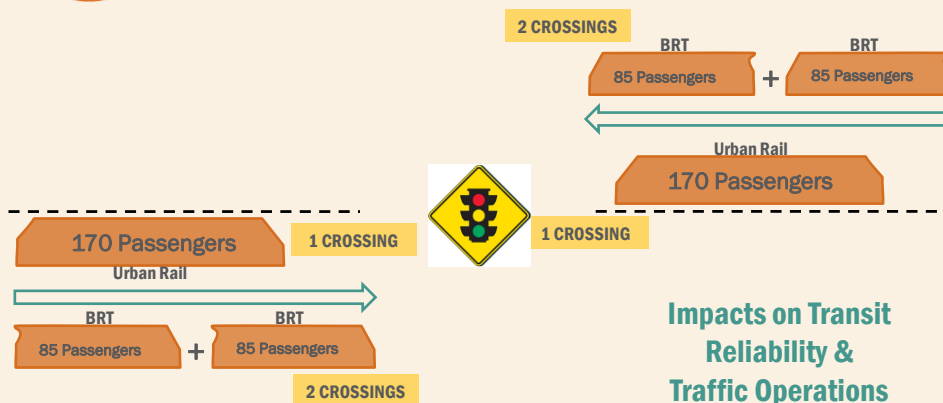
**Subject of
CCAG "Dig"
Thursday, May 8
Tuesday, June 3**



Mode Evaluation

3

Vehicle Capacity and Operations



3

Preliminary Ridership Estimates Based on Target Service Profile

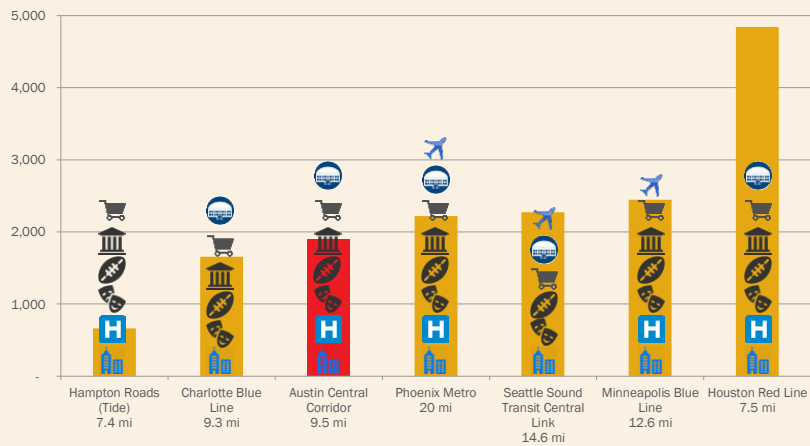
	Urban Rail	BRT
Assumed vehicle capacity	170	85
Peak frequency	10 minutes	10 minutes
Anticipated daily ridership*	16,000 – 20,000	15,000 – 19,000

* Preliminary estimates. Subject to change.

3

LRT Ridership Comparison

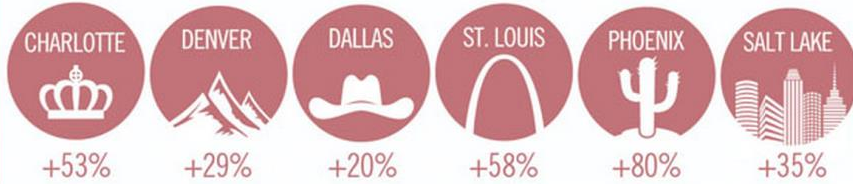
Ridership per mile



3

LRT Ridership Reality Check.

Actual weekday light rail ridership above projections in opening year.



[From Charlotte Area Transit System \(CATS\)](#)

3

Target Service Profile – Peak Demand

	Urban Rail	BRT
Assumed vehicle capacity	170	85
Peak frequency	10 minutes	10 minutes
Anticipated daily demand	16,000 – 20,000	15,000 – 19,000
Anticipated weekday peak-hour demand	2,500	2,300
Maximum Demand Between Any Two Stations	1,100	950

3

Service and Demand

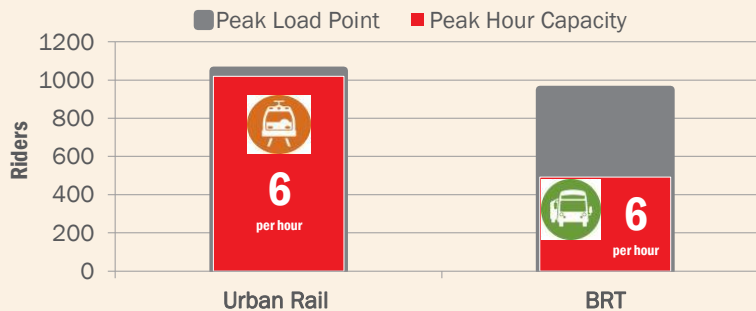
Urban Rail

- Peak demand MET by single vehicle

BRT

- Peak demand NOT MET by single vehicle

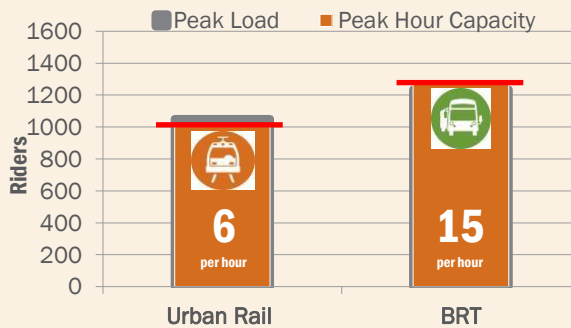
Urban Rail & BRT
Same 10-min Service



3

Modified Service-Capacity Comparison

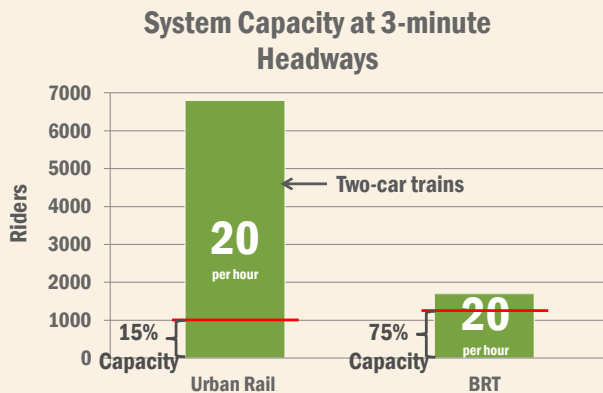
Urban Rail & BRT
10-min UR & 4-min BRT



- Urban Rail – 6 one-car trains can meet demand
- BRT – 15 buses at 4-minute headways required to meet demand
 - **Change in service profile**
 - BRT on 4-minute headways will increase demand
 - Results in more BRT Vehicles and higher O&M + replacement costs

3

System Capacity



- Minimum headway for reliable service is 3-minutes
- No capacity for system expansion with BRT
- Urban Rail is the appropriate mode to meet system needs

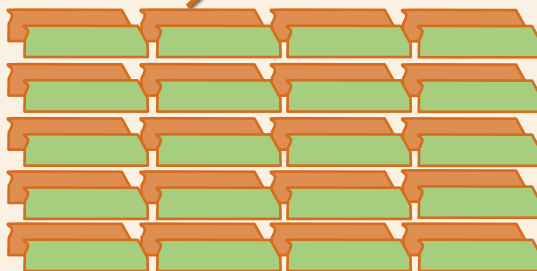
3

Life Cycle Vehicle Costs (Service + Spares)

9 Urban Rail Vehicles



Urban Rail Life Cycle: 25 years

40
20 BRT Vehicles

BRT Life Cycle: 12 years

Initial Vehicle Capital Cost:

9 UR vehicles x \$4.4 M per vehicle = \$39.6 M

20 BRT vehicles x \$900 K per vehicle = \$18 M

20 BRT vehicles x \$1.0 M per vehicle = \$20 M

Total BRT Capital Cost = \$38 M

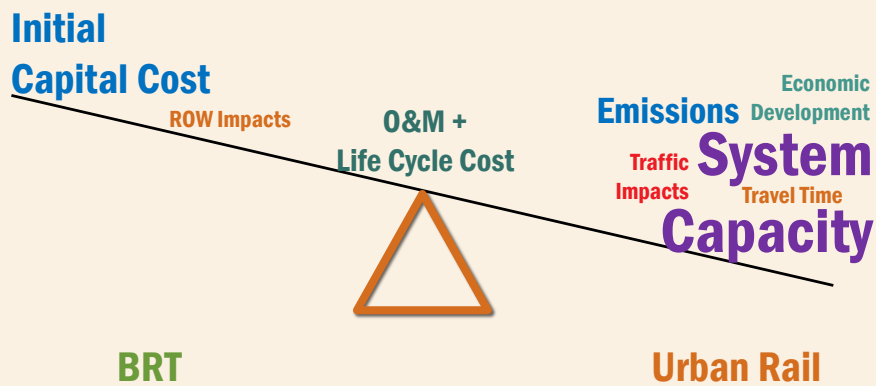
3

Mode Evaluation

	Urban Rail	BRT – 4 minute
Ridership	+	+
Travel Time	0	0
Initial Vehicle Cost	0	+
Annual O&M + Lifecycle	0	0
Vehicle Emissions	+	–
Economic Development	++	+
Traffic Impacts	0	–
ROW Impacts	0	+
System Expansion Capacity	+	--

3

Mode Decision: Urban Rail





Mode Discussion



Alignment Evaluation: Hancock

3

Hancock Alternatives



- Grade separation with Red Line
- Property and neighborhood impacts
- I-35 improvements

East Tunnel Alternative

- Portal on 41st
- Below-grade station at Red Line
- Potential tunnel extension under I-35 towards Mueller

West Tunnel Alternative

- At-grade station and portal on Red River
- Red Line transfer at Highland or new station on Airport

3

Hancock Alternatives: West Tunnel

Benefits

- Shorter travel time due to length and geometry
- At-grade station at 41st and Red River is less costly, more visible
- Consistent with Airport Blvd. Plan

Approximate cost: \$180M

Issues

- No Red Line transfer at Hancock
- Potential new Red Line station at Airport/53 ½—too close to Highland Station?



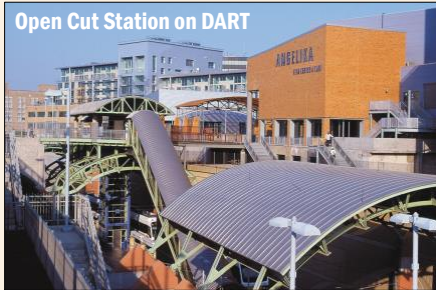
3

Hancock Alternatives: East Tunnel

Benefits

- Preferred potential Red Line transfer station at Hancock – favors bus transfers
- Future connectivity to Mueller

Open Cut Station on DART



Issues

- Below-grade station cost
- Requires acquisition/displacement of property and businesses along I-35 frontage
- *Appearance* of duplication of service

Approximate cost: \$220M

3

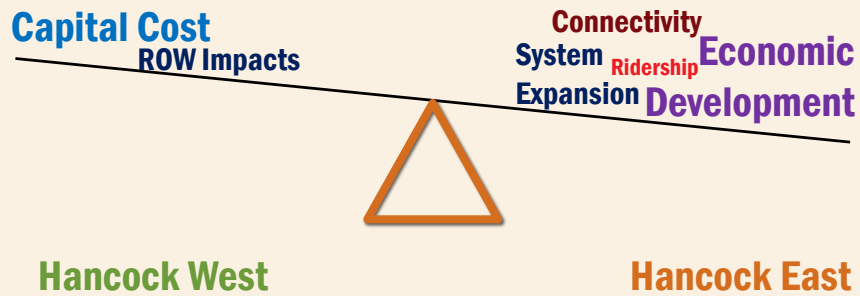
Hancock Alternatives

	West Tunnel	East Tunnel
Ridership	0	+
Travel Time	+	0
Capital Cost	0	—*
Annual O&M	0	0
Economic Development	+	++
Traffic Impacts	0	0
ROW Impacts	0	—
Connectivity	—	+
System Expansion	—	+

* Opportunities for value engineering

3

Alignment Decision: Hancock East

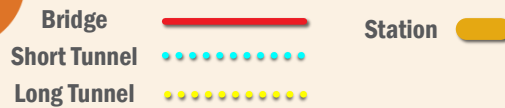


Hancock Discussion

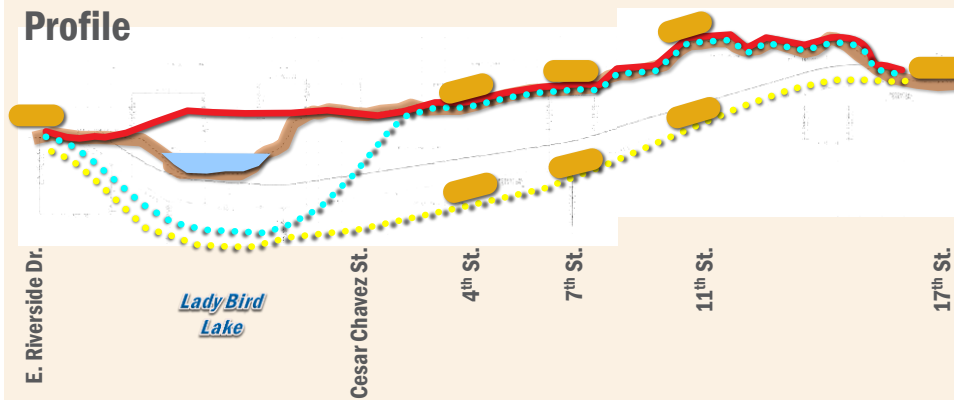
Alignment Evaluation: Lady Bird Lake

3

Lady Bird Lake thru Downtown



Profile



3

Bridge Alternative

Benefits

- Opportunity for signature structure/city icon
- Could be multimodal with bicycle, pedestrian, bus access
- Lower capital cost -> allows greater overall project length

Issues

- Conflict with boathouse
- Reduced auto capacity, left turns, parking on Trinity
- Utilities
- 6th Street during street closures



Portland-Milwaukie Light Rail Bridge across Willamette River

Approximate cost: \$175M

3

Short Tunnel Alternative

Benefits

- Avoids conflict with boathouse
- Avoids crossing Cesar Chavez

Issues

- Convention Center operations (north portal)
- Reduced auto capacity, left turns, parking on Trinity
- Utilities
- 6th Street during street closures
- FTA cost effectiveness



DART Tunnel

Approximate cost: \$215M

3

Long Tunnel Alternative

Benefits

- Greater reliability
- Can accommodate slightly higher speeds and higher frequencies
- Maintains auto capacity, left turns, parking on Trinity
- Avoids issues with 6th Street during street closures, boathouse

Approximate cost: \$470M

Issues

- Cost, including underground stations
- Less visible service downtown/reduced placemaking
- Portal and vents
- FTA cost-effectiveness



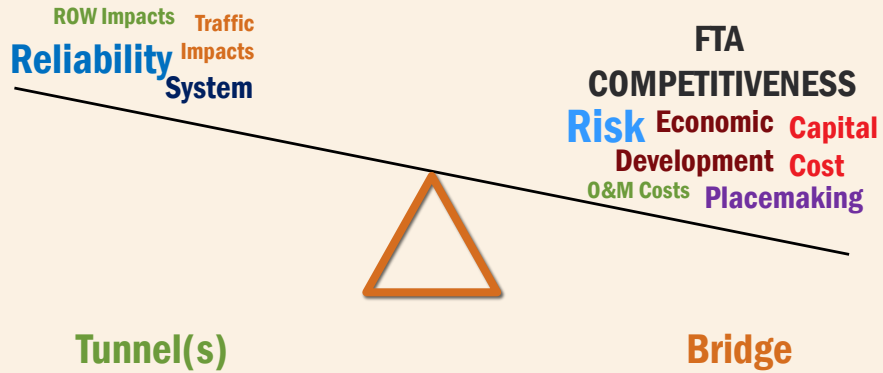
3

Lady Bird Lake Alternatives

	Bridge	Short Tunnel	Long Tunnel
Ridership	0	0	0
Travel Time	0	0	0
Capital Cost	+	-	--
Annual O&M	+	0	-
Economic Development	++	+	0
Traffic Impacts	0	0	++
ROW Impacts	-	0	+
Connectivity	0	0	0
System Expansion	0	0	0
Placemaking	++	+	-
Reliability	0	+	++
FTA Competitiveness	0	--	--
Project Implementation Risk	0	--	--

3

Alignment Decision: Bridge.



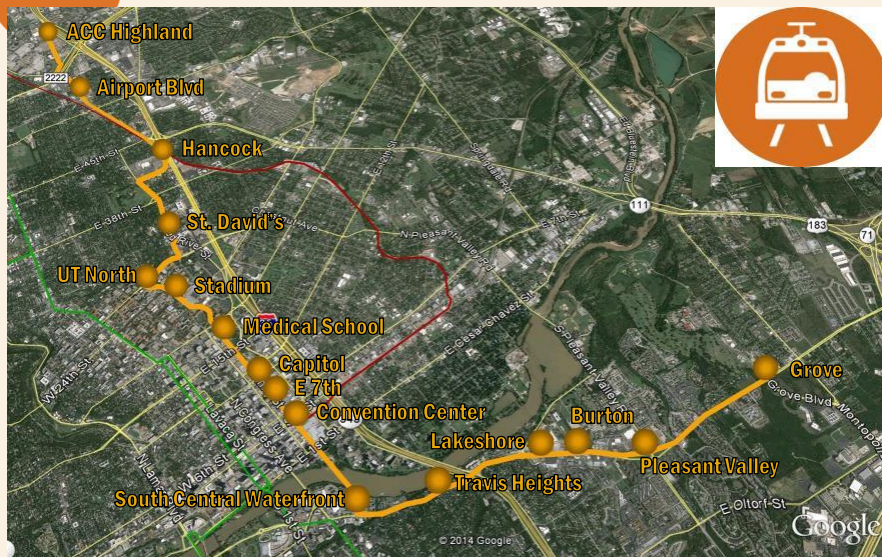
Lady Bird Lake Crossing Discussion

4

Locally Preferred Alternative Recommendation

4

Recommended LPA



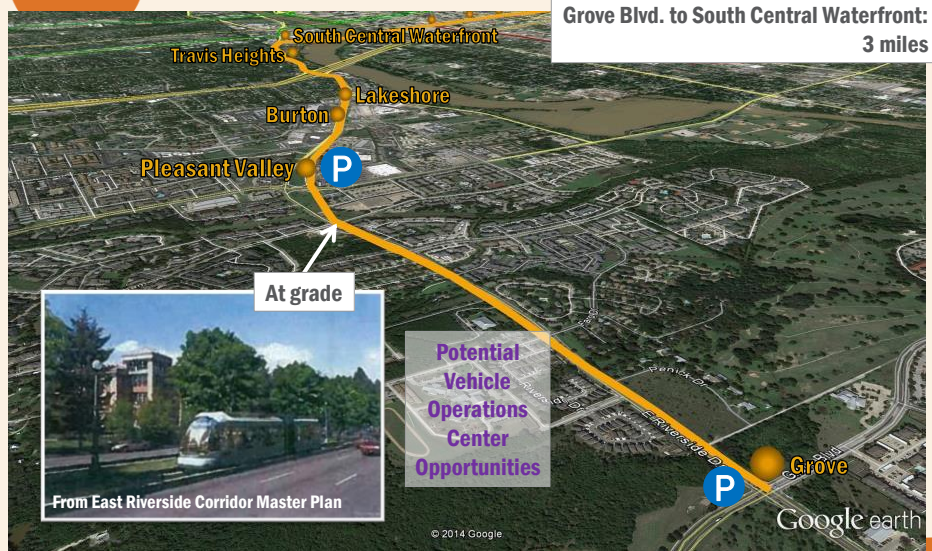
4

LPA Details

- Mode: Urban Rail
- Alignment:
 - East Riverside
 - Bridge over Lady Bird Lake
 - Trinity in Downtown
 - San Jacinto through UT
 - Red River to Hancock Center
 - East Tunnel at Hancock
 - Airport Blvd to ACC Highland at Middle Fiskville
- 16 Stations
- Vehicle operations center

4

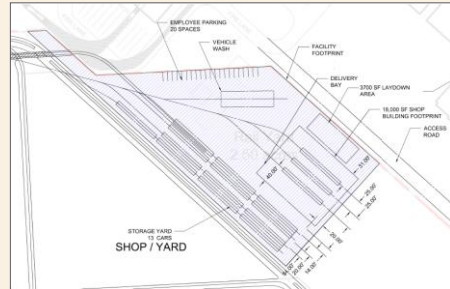
East Riverside



4

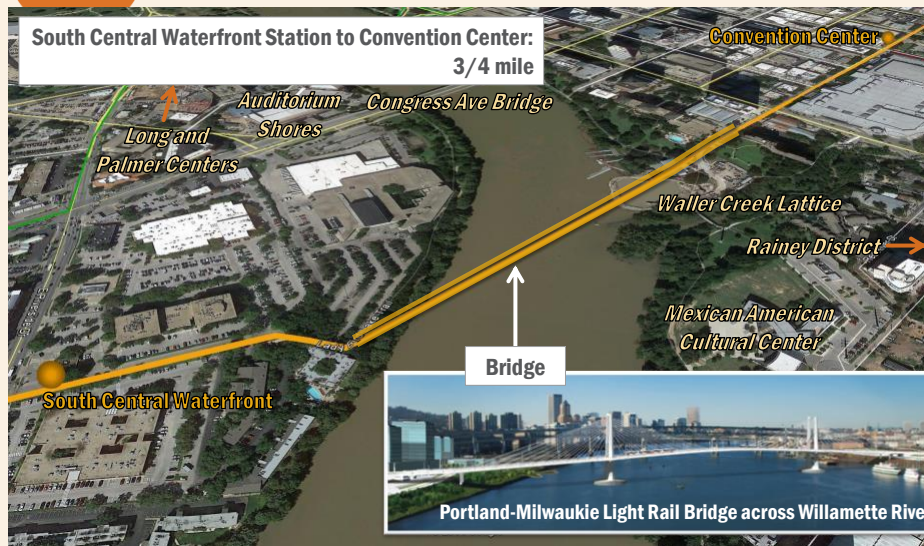
Vehicle Operations Center

- LPA fleet: 9 cars
- 6 to 8 acres for LPA
- Functions:
 - Control Center
 - Maintenance bays
 - Vehicle wash/painting/body shop
 - Maintenance-of-way equipment storage
 - Administrative offices



4

Lady Bird Lake



4

Trinity Street

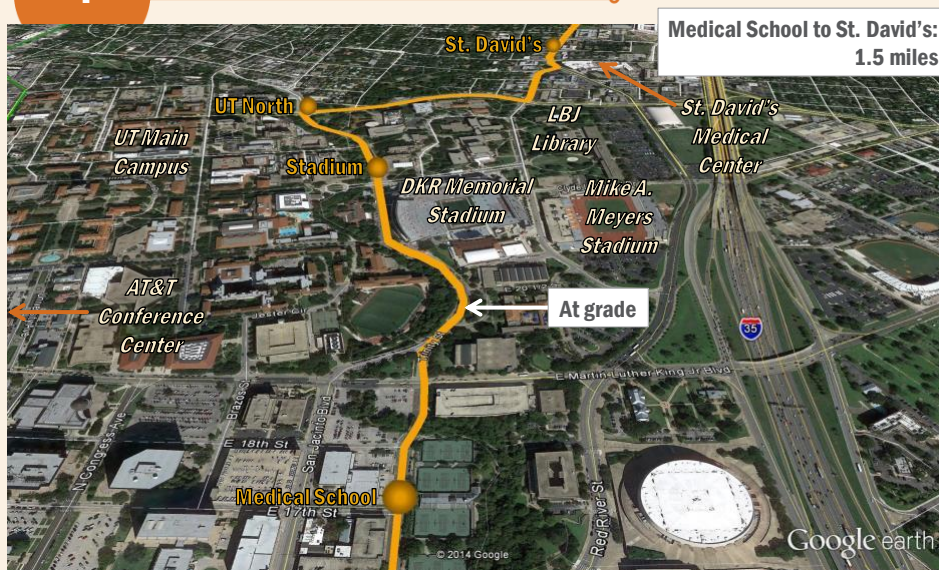


projectconnect
central corridor

51

4

University of Texas



projectconnect
central corridor

52

4

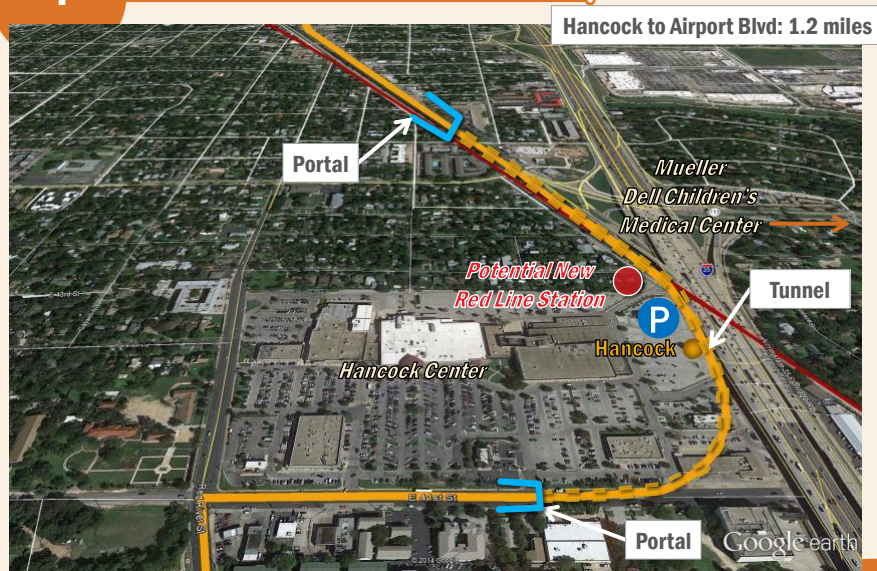
Red River

projectconnect
central corridor

53

4

Hancock

projectconnect
central corridor

54

4

Airport Blvd to ACC Highland



projectconnect
central corridor

55

4

Recommended LPA

- 9.5-mile Urban Rail
- Anticipated Daily Ridership
 - 16,000 – 20,000
- Travel Time
 - Grove to Convention Center (4.1 miles) – 11 min
 - ACC Highland to Convention Center (5.4 miles) – 17 min
- Vehicle Operations Center opportunities
 - Pleasant Valley to Grove
 - Airport Blvd Area
- Total Capital Cost: \$1.38 B (2020)
- Annual O&M Costs: **TBD**

projectconnect
central corridor

56

4

Capital Costs

Capital Category	Estimated Cost
Construction	\$726 M
Vehicles	\$43 M
Right-of-Way	\$38 M
Professional services	\$239 M
Total contingencies	\$330 M
Total	\$1.38 B

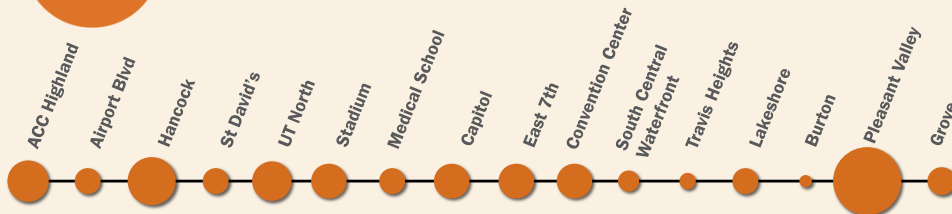
4

Cost Comparison – Other LRT Systems

System/Line	Length (miles)	Total Cost	2020 Dollars (@ 3%/year esc.)	Relative Cost per Mile
Houston SE Corridor	6.56	\$823 M (2012)	\$1.1 B	\$163.7 M
Houston N Corridor	5.28	\$756 M (2013)	\$958 M	\$181.4 M
Portland-Milwaukie	7.3	\$1.49 B (2013)	\$1.9 B	\$258.6 M
MSP Central Corridor	9.8	\$957 M (2013)	\$1.2 B	\$123.7 M
Austin Urban Rail	9.5	\$1.13 B (2014)	\$1.38 B	\$144.8 M

4

Relative Station Activity (Preliminary)

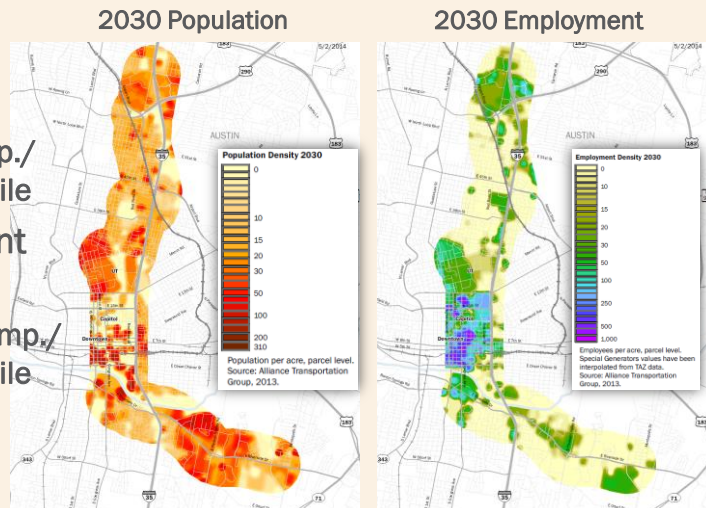


- Pleasant Valley represents nearly 18% of all station activity
- Highland is a strong commuter station, but under-represented
- Strong balance between north and south
 - AM peak is stronger in the NB direction (1.3 NB:1 SB)
 - Even distribution of passengers in downtown and at UT
- Off-peak ridership (25% of daily)
 - Indicates strong all-day demand
- Hancock Center has strong ridership due to Red Line connectivity and park-and-ride

4

Population & Employment Served within ½ Mile

- Population 46,151
 - 5,527 pop./square mile
- Employment 96,944
 - 11,610 emp./square mile



4

Potential Economic Development Impacts

- Developed by UT Center for Sustainable Development
- Uses Envision Tomorrow+ (Sustainable Places Project Analytic Tool)
- 3D Development Visualizations



Image showing potential change in land use

4

Potential Economic Development Impacts



- Orange = "emerging projects" already planned to be developed
- Other colors = high potential to be developed

4

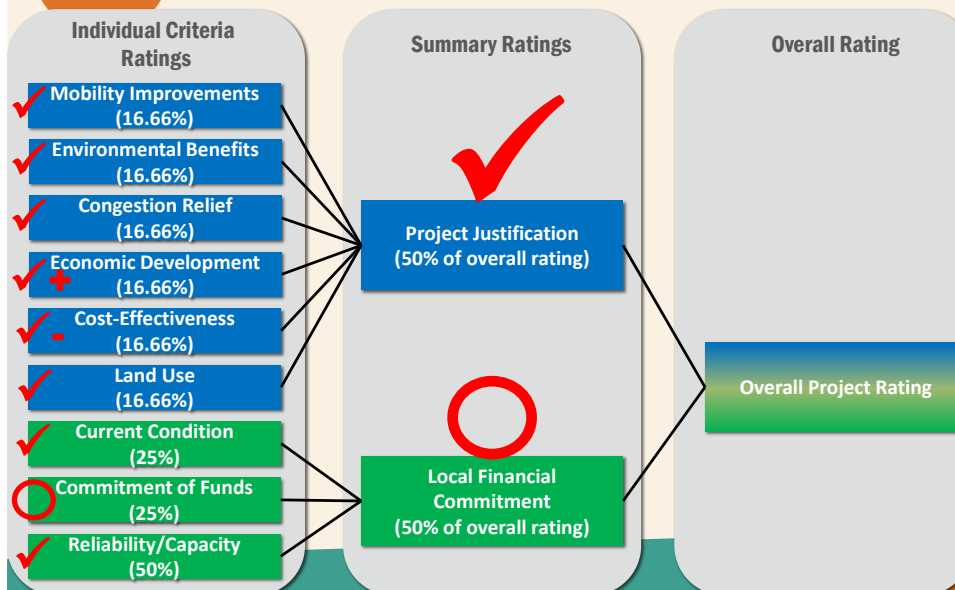
Project Influence on Economic Development

Potential Economic Impact of LPA	Low Estimate	High Estimate
Total Population	14,400	17,700
Total Employment	14,700	26,800
2030 Annual Property Tax Revenue*	\$ 31,600,000	\$ 44,400,000
2030 Annual Sales Tax Revenue*	\$ 5,900,000	\$ 10,800,000
Total 2030 Annual Tax Revenue*	\$ 37,500,000	\$ 55,200,000
New Building Value	\$6,300,000,000	\$9,100,000,000
ROI on recommended LPA	5:1	7:1

*City of Austin only

4

FTA New and Small Starts Evaluation





Recommended LPA Discussion

projectconnect
central corridor 65



5 Next Steps

projectconnect
central corridor 66

5

May 16th CCAG Topics

- Phasing Options
- Project Recommendation
- Funding Approach
- Governance Approach
- System Connectivity



5

CCAG “Digs”

- Thursday, May 8th
- Tuesday, June 3rd

5

Road to the LPA***Central Corridor Study Topics***

- CCAG #12, May 2nd
 - Project team recommendation for LPA (*end-to-end*)
 - Rough order-of-magnitude (ROM) cost estimates
 - Ridership estimates
- CCAG #13, May 16th
 - Phasing options
 - Project recommendation
 - Funding and governance
 - System connectivity
- CCAG #14, June 13th
 - Action on recommended LPA and 1st Phase

Council Schedule

- March 27th
 - Briefing
- May 22nd
 - Briefing
- June 19th
 - Special Session
- June 26th
 - Action TBD
- Aug 7th
 - Action TBD

6

Citizen Communication

A young girl with blonde hair, wearing a pink patterned top, is smiling and looking towards the right. In the background, a large bridge is under construction, with a tall crane visible. The scene is outdoors, with a body of water and greenery in the foreground. The image is partially obscured by a yellow diagonal shape in the top left corner.

